METHOD AND APPARATUS FOR INK JET PRINTING

Abstract of the Disclosure:

Ink jet printing is provided on large area substrates such as wide width textile webs. The printheads are driven by linear servo motors (633) across a bridge (630) that extends across the substrate. The timing of the jetting of the ink is coordinated with the motion of the printheads (640,641), so that the heads can be rapidly moved and the ink can be jetted while the printheads are accelerating or decelerating as they move on the bridge. Preferably, ultraviolet (UV) light curable ink is jetted and first partially cured with UV light (645,646) and then subjected to heating to more completely reduce uncured monomers of the ink on the substrate. Preferably, the heat is applied by contacting the substrate with a heated plate (661,662). Ink jet printing is provided using ultraviolet (UV) light curable or other curable composition or stable or other printable substance. In certain embodiments the UV ink has a dye-component therein. The ink is jetted onto a substrate, the composition is cured, then heated to set the dye. Sublimation dye-based UV ink printing onto polyester is preferred. A release layer of protective material (702,704), such as a TEFLON film or sheet, covers a substrate support (705,706). A porous substrate to be printed, such as a textile material (711), is supported on or above the support. Ink is jetted onto the substrate, with some of the ink passing through pores in the substrate and landing on the protective material. UV curable ink is preferably used and is exposed by UV light from a UV light curing head, which solidifies the ink on the substrate. The UV curing light has a long enough focal length to focus on the surface of the substrate and also, where it passes through pores in the substrate, on ink on the protective material, thereby solidifying the ink on the protective material. When the substrate is removed from the support, the solidified ink on the protective material may be wiped from the protective material. The protective material may be a coating on the support over which the substrate slides or a belt that moves with the substrate. A textile substrate may be preconditioned by singeing or shaving to remove fuzz from the fabric that could clog the printheads. A printhead cleaning station is also provided.